Proposed Amendment for: 10/590,442
(Attorney Docket No. HRK-001)

Attachment to Interview Summary

Do not enter claims

Patent Technology Centers

Facsimile Transmission

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Fax Notes:

Mr. Kubovcik,
The following is a proposed amendment to put 10/590,442 in condition for allowance. Attached are: a marked-up proposal, a clean proposal, and comments discussing the rationale for these changes. The changes primarily address wording/clarity issues. If acceptable, I will enter these changes in an examiner's amendment.
Sincerely,
Michael J Feely (Primary Examiner; AU 1761)

Date and time of transmission: Friday, May 06, 2011 12:28:06 PM
Number of pages including this cover sheet: 09

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Marked-up Version

In the claims:

1. (Proposed Amendment) An epoxy resin composition for carbon-fiber-reinforced composite materials, comprising the following components [A], [B], [C], [D] and [E]:

[A] epoxy resin,

[B] amine curing agent which is dicyandiamide,

[C] phosphorus compound,

[D] curing accelerator which is 1,1'-(4- methyl-m-phenylene)bis(3,3-dimethylurea) and,

[E] [[a]] thermoplastic resin;

wherein ~~the concentration of the~~ component [C] is present in an amount such that the resin composition has a phosphorus atom concentration of ~~is~~ 0.2 to 15% by weight ~~in terms of phosphorus atom concentration~~; and

wherein ~~a content of~~ components [A], [B], [C], [D], and [E] are present in amounts such that the combined amount of components [A], [B], [C], [D], and [E] is at least ~~in the epoxy resin composition is more than~~ 95% by weight, based on the overall resin composition.

2. (Proposed Amendment) The epoxy resin composition for carbon-fiber-reinforced composite materials according to claim 1, ~~characterized in that the~~ wherein the resin composition has a viscosity of ~~the composition is~~ 10 to 700 Pa·s at 60°C.

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3. (Proposed Amendment) The epoxy resin composition for carbon-fiber-reinforced composite materials according to claim 1, ~~characterized by comprising red phosphorus as the~~ wherein component [C] comprises red phosphorus.

4. (Proposed Amendment) The epoxy resin composition for carbon-fiber-reinforced composite materials according to claim 3, ~~characterized in that~~ wherein the red phosphorus is coated with a metal hydroxide, a resin or a combination thereof ~~and/or a resin~~.

5-10. (canceled)

11. (Proposed Amendment) The epoxy resin composition for carbon-fiber-reinforced composite materials according to claim 1, ~~characterized in that the~~ wherein the resin composition has a specific gravity of ~~the composition is~~ 1.35 or lower.

12. (Proposed Amendment) The epoxy resin composition for carbon-fiber-reinforced composite materials according to claim 1, ~~characterized in that the composition can be~~ wherein the resin composition is capable of being cured within 30 minutes at 150°C.

13. (Previously Presented) A prepreg, prepared by impregnating carbon fiber with the epoxy resin composition for carbon-fiber-reinforced composite materials according to claim 1.

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14. (Proposed Amendment) The prepreg according to claim 13, wherein the prepreg has a ~~characterized in that the~~ fiber volume content of ~~a prepreg is~~ 30 to 95%.

15. (Proposed Amendment) The prepreg according to claim 13, wherein the prepreg is a woven prepreg or a unidirectional prepreg ~~A fiber-reinforced composite sheet, characterized by comprising a cured resin prepared by curing the epoxy resin composition for carbon fiber-reinforced composite materials according to claim 1; and carbon fiber~~.

16. (Proposed Amendment) A fiber-reinforced composite material ~~sheet~~, prepared by laminating a plurality of prepregs according to claim 15 and curing said laminate ~~a prepreg according to claim 13~~.

17-49. (Proposed Cancellation)

50. (New) A fiber-reinforced composite material, prepared by curing the prepreg according to claim 13.

In the specification:

- Replace the abstract with:

-- The present invention provides a light-weight fiber-reinforced composite material that has excellent flame retardance and mechanical properties and never emits a halogen gas. The present invention also provides a prepreg and [[en]] an epoxy resin composition

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suited to obtain the above described fiber-reinforced composite material. The present invention also provides an integrated molding which is produced using the above described fiber-reinforced composite material, thereby suitable for use in electric/electronic casings. The epoxy resin composition is such that it contains the following components [A], [B], ~~and~~ [C], [D], and [E]:

[A] epoxy resin,

[B] amine curing agent, ~~and~~

[C] phosphorus compound,

[D] curing accelerator, and

[E] thermoplastic resin,

wherein the resin composition has a phosphorus atom concentration of ~~the component [C] is~~ 0.2 to 15% by weight ~~in terms of phosphorus atom concentration~~.--

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Clean Version

In the claims:

1. (Proposed Amendment) An epoxy resin composition for carbon-fiber-reinforced composite materials, comprising the following components [A], [B], [C], [D] and [E]:

[A] epoxy resin,

[B] amine curing agent which is dicyandiamide,

[C] phosphorus compound,

[D] curing accelerator which is 1,1'-(4- methyl-m-phenylene)bis(3,3-dimethylurea) and,

[E] thermoplastic resin;

wherein component [C] is present in an amount such that the resin composition has a phosphorus atom concentration of 0.2 to 15% by weight; and

wherein components [A], [B], [C], [D], and [E] are present in amounts such that the combined amount of components [A], [B], [C], [D], and [E] is at least 95% by weight, based on the overall resin composition.

2. (Proposed Amendment) The epoxy resin composition for carbon-fiber-reinforced composite materials according to claim 1, wherein the resin composition has a viscosity of 10 to 700 Pa's at 60°C.

3. (Proposed Amendment) The epoxy resin composition for carbon-fiber-reinforced composite materials according to claim 1, wherein component [C] comprises red phosphorus.

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4. (Proposed Amendment) The epoxy resin composition for carbon-fiber-reinforced composite materials according to claim 3, wherein the red phosphorus is coated with a metal hydroxide, a resin or a combination thereof.

5-10. (canceled)

11. (Proposed Amendment) The epoxy resin composition for carbon-fiber-reinforced composite materials according to claim 1, wherein the resin composition has a specific gravity of 1.35 or lower.

12. (Proposed Amendment) The epoxy resin composition for carbon-fiber-reinforced composite materials according to claim 1, wherein the resin composition is capable of being cured within 30 minutes at 150°C.

13. (Previously Presented) A prepreg, prepared by impregnating carbon fiber with the epoxy resin composition for carbon-fiber-reinforced composite materials according to claim 1.

14. (Proposed Amendment) The prepreg according to claim 13, wherein the prepreg has a fiber volume content of 30 to 95%.

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15. (Proposed Amendment) The prepreg according to claim 13, wherein the prepreg is a woven prepreg or a unidirectional prepreg.

16. (Proposed Amendment) A fiber-reinforced composite material, prepared by laminating a plurality of prepregs according to claim 15 and curing said laminate.

17-49. (Proposed Cancellation)

50. (New) A fiber-reinforced composite material, prepared by curing the prepreg according to claim 13.

In the specification:

- Replace the abstract with:

-- The present invention provides a light-weight fiber-reinforced composite material that has excellent flame retardance and mechanical properties and never emits a halogen gas. The present invention also provides a prepreg and an epoxy resin composition suited to obtain the above described fiber-reinforced composite material. The present invention also provides an integrated molding which is produced using the above described fiber-reinforced composite material, thereby suitable for use in electric/electronic casings. The epoxy resin composition is such that it contains the following components [A], [B], [C], [D], and [E]: [A] epoxy resin, [B] amine curing agent, [C] phosphorus compound, [D] curing accelerator, and [E] thermoplastic resin, wherein the resin composition has a phosphorus atom concentration of 0.2 to 15% by weight.--

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Comments

- In claim 1, the phosphorus content limitation was amended to improve clarity. Paragraph 0070 of the corresponding pre-publication was used for guidance.
- In claim 1, the [A-E] content limitation was amended to improve clarity. Paragraph ~~0090~~ 0099 of the corresponding pre-publication was used for guidance.
- Claims 2-4, 11, 12, and 14 were amended to address minor wording issues. The changed were made to improve clarity.
- Claim 15 was amended to feature the prepreg limitations discussed in paragraphs 0107-0108 of the corresponding pre-publication.
- Claim 16 was amended to feature the composite material discussed in paragraphs 0107-0108 of the corresponding pre-publication.
- Claims 17-49 were cancelled because they were withdrawn without traverse.
- Claim 50 was added to feature the composite material discussed in paragraph 0115 of the corresponding pre-publication.
- The abstract was amended into a single-paragraph. It also better reflects the claimed subject matter.